General

Title

Coronary artery disease: percutaneous transluminal coronary angioplasty (PTCA) area rate.

Source(s)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

AHRQ quality indicators. Inpatient quality indicators: technical specifications [version 4.2]. IQI #27 percutaneous transluminal coronary angioplasty (PTCA) area rate. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2010 Sep. 1 p.

Measure Domain

Primary Measure Domain

Use of Services

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the Measure Validity page.

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the number of percutaneous transluminal coronary angioplasty (PTCA) procedures per 100,000 population in Metro Area* or county.

*The term "metropolitan area" (MA) was adopted by the U.S. Census in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs) and primary metropolitan statistical areas (PMSAs). In addition, "area" could refer to either 1) FIPS county, 2) modified FIPS county, 3) 1999 OMB Metropolitan Statistical Area or 3) 2003 OMB Metropolitan Statistical Area. Micropolitan Statistical Areas are not used in the QI software.

Rationale

Percutaneous transluminal coronary angioplasty (PTCA) is performed on patients with coronary artery disease. No ideal rate for PTCA has been established. PTCA is a potentially overused procedure, and rates vary widely and systematically between areas.

As an area utilization indicator*, PTCA is a proxy for actual quality problems. The indicator has unclear construct validity, as high utilization of PTCA has not been shown to necessarily be associated with higher rates of inappropriate utilization. A minor source of bias may be the small number of procedures performed on an outpatient basis. Caution should be maintained for PTCA rates that are drastically below or above the average or recommended rates.

*The following caveats were identified from the literature review for the "Percutaneous Transluminal Coronary Angioplasty Area Rate" indicator:

Proxy[b]: Indicator does not directly measure patient outcomes but an aspect of care that is associated with the outcome; thus, it is best used with other indicators that measure similar aspects of care.

Selection bias[a]: This results when a substantial percentage of care for a condition is provided in the outpatient setting, so the subset of inpatient cases may be unrepresentative. Examination of outpatient care or emergency care data may help to reduce this in these cases.

Unclear construct[b]: There is uncertainty or poor correlation with widely accepted process measures.

Unclear benchmark[b]: The "correct rate" has not been established for the indicator; national, regional, or peer group averages may be the best benchmark available.

Refer to the original measure documentation for further details.

Note:

a - The concern is theoretical or suggested, but no specific evidence was found in the literature.

b - Indicates that the concern has been demonstrated in the literature.

Primary Clinical Component

Coronary artery disease; percutaneous transluminal coronary angioplasty (PTCA)

Denominator Description

Population in Metro Area or county, age 40 years and older

Numerator Description

Discharges, age 40 years and older, with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) percutaneous transluminal coronary angioplasty (PTCA) code procedure (0066, 3601, 3602, 3605)

Exclude cases:

Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, puerperium)

Evidence Supporting the Measure

Evidence Supporting the Value of Monitoring Use of Service

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Evidence Supporting Need for the Measure

Need for the Measure

Monitoring and planning

Variation in use of service

Evidence Supporting Need for the Measure

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

State of Use of the Measure

State of Use

Current routine use

Current Use

External oversight/State government program

Monitoring and planning

Application of Measure in its Current Use

Care Setting

Hospitals

Professionals Responsible for Health Care

Physicians

Public Health Professionals

Lowest Level of Health Care Delivery Addressed

Counties or Cities

Target Population Age

Age greater than or equal to 40 years

Target Population Gender

Either male or female

Stratification by Vulnerable Populations

Unspecified

Characteristics of the Primary Clinical Component

Incidence/Prevalence

In a study of seven Swedish heart centers, 38.3% of all percutaneous transluminal coronary angioplasty (PTCA) procedures were performed for inappropriate indications and 30% for uncertain indications. In a follow-up study of a coronary angiography study conducted in New York, a panel of cardiologists found the rate for inappropriate indications was 12% and the rate of procedures performed for uncertain indications was 27%.

Evidence for Incidence/Prevalence

Bernstein SJ, Brorsson B, Aberg T, Emanuelsson H, Brook RH, Werko L. Appropriateness of referral of coronary angiography patients in Sweden. SECOR/SBU Project Group. Heart. 1999 May;81(5):470-7. PubMed

Leape LL, Park RE, Bashore TM, Harrison JK, Davidson CJ, Brook RH. Effect of variability in the interpretation of coronary angiograms on the appropriateness of use of coronary revascularization procedures. Am Heart J. 2000 Jan;139(1 Pt 1):106-13. PubMed

Association with Vulnerable Populations

Unspecified

Burden of Illness

Unspecified

Utilization

Unspecified

Costs

Unspecified

Institute of Medicine (IOM) Healthcare Quality Report Categories

IOM Care Need

Not within an IOM Care Need

IOM Domain

Not within an IOM Domain

Data Collection for the Measure

Case Finding

Both users and nonusers of care

Description of Case Finding

Population in Metro Area or county, age 40 years and older

Denominator Sampling Frame

Geographically defined

Denominator Inclusions/Exclusions

Inclusions
Population in Metro Area or county, age 40 years and older

Exclusions
Unspecified

Relationship of Denominator to Numerator

All cases in the denominator are not equally eligible to appear in the numerator

Denominator (Index) Event

Patient Characteristic

Denominator Time Window

Time window is a single point in time

Numerator Inclusions/Exclusions

Inclusions
Discharges, age 40 years and older, with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) percutaneous transluminal coronary angioplasty (PTCA) code procedure (0066,

3601, 3602, 3605)

Exclusions
Exclude cases:

Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, puerperium)

Measure Results Under Control of Health Care Professionals, Organizations and/or Policymakers

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

Numerator Time Window

Institutionalization

Data Source

Administrative data

Level of Determination of Quality

Does not apply to this measure

Pre-existing Instrument Used

Unspecified

Computation of the Measure

Scoring

Rate

Interpretation of Score

Undetermined

Allowance for Patient Factors

Analysis by subgroup (stratification on patient factors, geographic factors, etc.)

Description of Allowance for Patient Factors

Observed (raw) rates may be stratified by areas (Metro Area or counties), age groups, race/ethnicity categories, and sex.

Risk adjustment of the data is recommended using, at minimum, age and sex.

Application of multivariate signal extraction (MSX) to smooth risk adjusted rates is also recommended.

Standard of Comparison

External comparison at a point in time

External comparison of time trends

Internal time comparison

Evaluation of Measure Properties

Extent of Measure Testing

Each potential quality indicator was evaluated against the following six criteria, which were considered essential for determining the reliability and validity of a quality indicator: face validity, precision, minimum bias, construct validity, fosters real quality improvement, and application. The project team searched Medline for articles relating to each of these six areas of evaluation. Additionally, extensive empirical testing of all potential indicators was conducted using the 1995-97 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and Nationwide Inpatient Sample (NIS) to determine precision, bias, and construct validity. Table 2 in the original measure documentation summarizes the results of the literature review and empirical evaluations on the Inpatient Quality Indicators. Refer to the original measure documentation for details.

Evidence for Reliability/Validity Testing

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

Identifying Information

Original Title

IQI #27 percutaneous transluminal coronary angioplasty (PTCA) area rate.

Measure Collection Name

Agency for Healthcare Research and Quality (AHRQ) Quality Indicators

Measure Set Name

Inpatient Quality Indicators

Submitter

Agency for Healthcare Research and Quality - Federal Government Agency [U.S.]

Developer

Agency for Healthcare Research and Quality - Federal Government Agency [U.S.]

Funding Source(s)

Agency for Healthcare Research and Quality (AHRQ)

Composition of the Group that Developed the Measure

The Agency for Healthcare Research and Quality (AHRQ) Quality Indicators are in the public domain and the specifications come from multiple sources, including the published and unpublished literature, users, researchers, and other organizations. AHRQ as an agency is responsible for the content of the indicators.

Financial Disclosures/Other Potential Conflicts of Interest

None

Adaptation

Measure was not adapted from another source.

Release Date

2002 Jun

Revision Date

2010 Sep

Measure Status

This is the current release of the measure.

This measure updates previous versions:

> AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals -- volume, mortality, and utilization [version 3.0]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2006 Feb 20. 99 p.
> AHRQ quality indicators. Inpatient quality indicators: technical specifications [version 4.1]. IQI #27 percutaneous transluminal coronary angioplasty (PTCA) area rate. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2009 Dec 1. 1 p.

Source(s)

AHRQ quality indicators. Guide to inpatient quality indicators: quality of care in hospitals - volume, mortality, and utilization [version 3.1]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2007 Mar 12. 91 p.

AHRQ quality indicators. Inpatient quality indicators: technical specifications [version 4.2]. IQI #27

percutaneous transluminal coronary angioplasty (PTCA) area rate. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2010 Sep. 1 p.

Measure Availability

The individual measure, "IQI #27 Percutaneous Transluminal Coronary Angioplasty (PTCA) Area Rate," is published in "AHRQ Quality Indicators. Guide to Inpatient Quality Indicators: Quality of Care in Hospitals -- Volume, Mortality, and Utilization" and "AHRQ Quality Indicators. Inpatient Quality Indicators: Technical Specifications." These documents are available in Portable Document Format (PDF) from the Inpatient Quality Indicators Resources page at the Agency for Healthcare Research and Quality (AHRQ) Quality Indicators Web site.

For more information, please contact the QI Support Team at support@qualityindicators.ahrq.gov.

Companion Documents

The following are available:

AHRQ quality indicators. Inpatient quality indicators: software documentation, SAS [version 4.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2010 Sep. 41 p. This document is available in Portable Document Format (PDF) from the Agency for Healthcare Research and Quality (AHRQ) Quality Indicators Web site.

AHRQ quality indicators. Software documentation: Windows [version 4.1a]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2010 Jul 2. 97 p. This document is available in PDF from the AHRQ Quality Indicators Web site.

AHRQ quality indicators. Inpatient quality indicators composite measure workgroup. Final report. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2008 Mar. various p. This document is available in PDF from the AHRQ Quality Indicators Web site.

UCSF-Stanford Evidence-based Practice Center. Davies GM, Geppert J, McClellan M, et al. Refinement of the HCUP quality indicators. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2001 May. 24 p. (Technical review; no. 4). This document is available in PDF from the AHRQ Quality Indicators Web site.

AHRQ quality indicator. Comparative data for the IQI based on the 2008 Nationwide Inpatient Sample (NIS) [version 4.1b]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2010 Sep. 20 p. This document is available in PDF from the AHRQ Quality Indicators Web site.

AHRQ quality indicator. Risk adjustment coefficients for the IQI [version 4.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2010 Sep. 20 p. This document is available in PDF from the AHRQ Quality Indicators Web site.

AHRQ quality indicators. Composite measures user guide for the inpatient quality indicators (IQI) [version 4.2]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2010 Sep. 6 p. This document is available in PDF from the AHRQ Quality Indicators Web site.

HCUPnet: a tool for identifying, tracking, and analyzing national hospital statistics. [Web site]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); [accessed 2011 May 24]. HCUPnet is available from the AHRQ Web site. See the related QualityTools summary.

NQMC Status

This NQMC summary was completed by ECRI on February 3, 2006. The information was verified by the measure developer on March 6, 2006. This NQMC summary was updated by ECRI Institute on May 29, 2007, on October 20, 2008 and again on August 27, 2010. This NQMC summary was reviewed and edited

by ECRI on July 13, 2011.

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